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10/643,826	08/18/2003	Marco Wirasinghe	42P15529	7008

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BLAKELY SOKOLOFF TAYLOR & ZAFMAN  
12400 WILSHIRE BOULEVARD  
SEVENTH FLOOR  
LOS ANGELES, CA 90025-1030

EXAMINER

MCLEAN MAYO, KIMBERLY N

ART UNIT PAPER NUMBER

2187

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/643,826	Applicant(s) WIRASINGHE ET AL.	
	Examiner Kimberly N. McLean-Mayo	Art Unit 2187	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 April 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. The enclosed detailed action is in response to the Amendment submitted on April 18, 2006.

#### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1-33 are rejected under 35 U.S.C. 102(e) as being anticipated by Nicholson et al. (PGPUB: US 2004/0153694).

Regarding claims 1-2, Nicholson discloses requesting an operating system to place a computer system in a hibernation mode (refer to Figure 7, the system determines whether it is entering hibernation, this determination is intrinsically in response to a stimuli of some sort requesting that the system enters hibernation, furthermore, since the operating system controls the allocation and usage of hardware resources, it is evident that the operating system receives such stimuli/request); gathering a state of the computer system (Figure 7, Reference 710); storing the system state to a first non-volatile memory of the computer system (Figure 7, Reference 712), and storing the system state to a second non-volatile memory of the computer system (Figure 7, Reference 714).

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Regarding claim 3, Nicholson discloses the first non-volatile memory has a storage capacity between 50-2000 megabytes (section [0042]), wherein the second non-volatile memory has a greater storage capacity than the first non-volatile memory (section [0004]; the remote boot server contains a hard disk drive and the smallest size of such a drive is 30 GB).

Regarding claim 4, the first non-volatile memory is logically coupled to the second non-volatile memory (section [0038], 2<sup>nd</sup> column, lines 9+, the second non-volatile memory is coupled to the first via References 171, 170, 121, and 222 in Figure 1).

Regarding claim 5, Nicholson discloses powering off the computer (Figure 7, Reference 708).

Regarding claim 6, Nicholson discloses powering on the computer system (section [0055], lines 16+); and loading the system state from the first non-volatile memory (Figure 9, step 806).

Regarding claim 7, Nicholson discloses the system state comprising contents of central processing unit (section [0052], lines 1-6; the system saves all information required to restore the system, since the central processing unit performs all of the processing for the system [section [0039], it is evident that the state of the cpu or contents of the cpu are required for storage when the system hibernates in order to ensure that the processing unit may resume processing).

Regarding claim 8, Nicholson discloses requesting that a computer system be placed in a hibernation mode (refer to Figure 7, the system determines whether it is entering hibernation, this

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determination is intrinsically in response to a stimuli of some sort requesting that the system enters hibernation); writing a state of the system to a hard disk drive of the communication system having a non-volatile memory cache (section [0010; lines 6+; the remote boot server comprises a hard disk drive comprising a non-volatile memory cache); storing the state of the system to the hard disk drive cache (section [0011]).

Regarding claim 9, Nicholson discloses requesting data from the cache to restore the state of the system after hibernation (section [0010], lines 12+).

Regarding claim 10, Nicholson discloses a mobile computer system (section [0028]; a mobile computer system is a computer system used in a mobile environment).

Regarding claim 11, Nicholson discloses a desktop computer system (section [0028 and 0050]; Nicholson discloses a computer system using a Windows operating system; such a system is a desktop computer system).

Regarding claims 12, 19 and 30, Nicholson discloses requesting that a computer system having a hard disk drive (section 0038, lines 17-20)) and a non-volatile memory (Figure 1, Reference 208) coupled to (via References 170, 171, 121 and 222 in Figure 1) a hard disk drive (Figure 1, Reference 183; the remote boot server contains a hard disk drive) of a mobile or desktop computer (section 0028, lines 10+; section 0030) be placed in hibernation mode (refer to Figure 7, the system determines whether it is entering hibernation, this determination is intrinsically in

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response to a stimuli of some sort requesting that the system enters hibernation); determining an address location of the non-volatile memory and writing contents of a central processing unit to the non-volatile memory (section [0052], lines 1-6; the system saves all information required to restore the system, since the central processing unit performs all of the processing for the system [section [0039], it is evident that the state of the cpu or contents of the cpu are required for storage when the system hibernates in order to ensure that the processing unit may resume processing. Additionally, since the non-volatile memory is a separate native device, [refer to section [0041, lines 19+], it is evident that the address of such a device must be determined before data is stored thereto). Nicholson discloses performing the above features by a personal computer/CPU executing computer readable instructions [section [0028]].

Regarding claim 13, Nicholson discloses writing contents of an operating system to the non-volatile memory (section [0050]).

Regarding claims 14 and 30, Nicholson discloses writing contents of a random access memory to the non-volatile memory (section [0052], lines 1-12; the RAM stores data/programs presently operated on and thus this information would be used prior to hibernation and thus would be stored in the non-volatile memory, also refer to section [0028]).

Regarding claim 15, Nicholson discloses powering off the computer (Figure 7, step 708).

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Regarding claims 16-18 and 32-33, Nicholson discloses awakening the computer system from the hibernation mode and initiating a load sequence from the non-volatile memory to restore the system to the contents of the central processing unit (Figure 9, step 806 and step performed before 806; also refer to section [0028]).

Regarding claims 26-27, Nicholson discloses a hard disk drive (section 0038, lines 17-20) means for storing a state of the computer to a non-volatile memory before power down (Figure 9, Reference 802); means for loading the state of the computer from the non-volatile memory (Figure 9, Reference 802).

Regarding claim 28, Nicholson discloses means for reducing power up time of the computer after being placed in a hibernation mode (section [0023]; when the system loads the data from non-volatile memory cache (Figure 1, Reference 208), the time to power up is reduced since the system does not have to retrieve data from the network).

Regarding claim 29, Nicholson discloses reducing power consumption of the computer (when the system power downs or is placed into hibernation mode).

Regarding claim 31, Nicholson discloses writing the contents to the hard disk drive using a transparent write-through process (data written to the hard disk drive is written in the hard disk

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drive's cache also and thus the write-through process is transparent to the computer connected to the network, in that the computer writes the data to the remote boot server).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 20-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nicholson (PGPUB: US 2004/0153694).

Regarding claims 20-21, Nicholson discloses a central processing unit (CPU) (Figure 1, Reference 120); a main memory coupled to the CPU, wherein the memory stores data to be manipulated by the CPU (Figure, Reference 130); a first non-volatile memory coupled to the main memory, wherein the data of the main memory is stored to the first non-volatile memory if the system is placed in hibernation mode (Figure 1, Reference 208; Figure 7, References 710 and 712); and a second non-volatile memory (Figure 1, Reference 182; the remote boot server comprises a hard disk drive which is larger than the first non-volatile memory) coupled to the first non-volatile memory, wherein the second non-volatile memory has a greater storage capacity than the first non-volatile memory (section [0042]), (section [0004]; the remote boot server contains a hard disk drive and the smallest size of such a drive is 30 GB). Nicholson does not disclose the first non-volatile memory has the same address configuration as the second non-volatile memory. This concept is well known with cache memory and main memory



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applications, wherein the cache and main memory having a same address configuration. This feature allows data to be written to the cache and the main memory during a write through process, which ensures that the main memory will always be synchronized with the cache in the event of failures. Nicholson discloses the use of the first and second memory to improve reliability in the event of errors or failures and thus it would have been obvious to one of ordinary skill in the art to incorporate this well known concept in the system taught by Nicholson for the desirable purpose of improved reliability.

Regarding claim 22, Nicholson discloses restoring the state of the CPU when the system is awoken from the hibernation mode (Figure 9, Reference 806).

Regarding claim 23, Nicholson discloses storing the data of the main memory and the state of the CPU to the second non-volatile memory (Figure 7, Reference 714).

Regarding claim 24, Nicholson discloses a driver coupled to the main memory and the first non-volatile memory, wherein the driver writes data of the main memory to the first non-volatile memory (storage driver stack; section [0041], lines 23+; Figure 6, sections [0045] – [0046]).

Regarding claim 25, Nicholson discloses a mobile computer system (section [0028]; a mobile computer system is a computer system used in a mobile environment).

***Response to Arguments***

6. Applicant's arguments filed April 18, 2006 have been fully considered but they are not persuasive.

Nicholson discloses storing static and dynamic configuration data [system state] to the NVM and to the remote storage volume (sections [0051-0052]). Hence, the configuration data is stored to both storage devices. It appears that Applicant is trying to claim that redundant copies of the same data is stored to both storage devices. However, the claim language does not necessarily require such. Claims are examined given the broadest reasonable interpretation. The claim simply states storing system state data to both a first and second non-volatile memory.

Regarding Applicant's argument that the second non-volatile memory is remote and therefore is not apart of the computer system is not an accurate assessment. A computer system, given the broadest reasonable interpretation, is a configuration that includes all functional components of a computer and its associated hardware. This interpretation does not imply where the components are. Nicholson describes the computer system as comprising the components in Figure 1.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly N. McLean-Mayo whose telephone number is 571-272-4194. The examiner can normally be reached on Mon, Wed, Thurs (10-4), Tues (9:45 - 6:15).

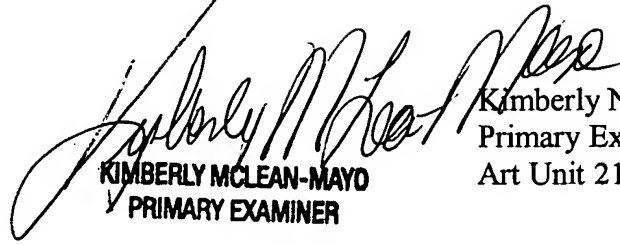
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Donald Sparks can be reached on 571-272-4201. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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**KIMBERLY MCLEAN-MAYO**  
**PRIMARY EXAMINER**

Kimberly N. McLean-Mayo  
Primary Examiner  
Art Unit 2187

KNM

June 25, 2006